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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,293	12/18/2001	Masanori Ayabe	350292001100	1682
25227	7590	09/21/2004	EXAMINER	
MORRISON & FOERSTER LLP 1650 TYSONS BOULEVARD SUITE 300 MCLEAN, VA 22102			HAAS, WENDY C	
			ART UNIT	PAPER NUMBER
			1661	

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/018,293

Applicant(s)

AYABE ET AL.

Examiner

Wendy C Haas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 13, 2004 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Ayabe et al. in view of Verbeek et al.

Ayabe et al. teach a method of culturing *Allium sativum* plants from a stem disc explant that forms a dome-shaped tissue in the absence of plant hormones. Ayabe et al. further teach that this method can be used to create virus-free plants. Finally, Ayabe et al. teach that the basal part of the foliage leaf also appeared to be an excellent explant for producing *in vitro* shoots in a preliminary experiment.

Ayabe et al. do not teach culture of a "foliage leaf base" to form a "domy tissue" or the use of a virus-infected explant.

Verbeek et al. teach that methods to eradicate viruses from infected garlic tissues through tissue culture are known in the art.

Ayabe et al. note that *in vitro* shoots progressively developed from the stem disc explant, beginning as “domy tissue” at one week of culture and progressing without interference to *in vitro* shoots at three weeks of culture. Ayabe et al. also note that electron microscopy revealed that “development of the *in vitro* shoots was restricted to regions surrounded by the basements of foliage leaves.” The examiner notes that the “foliage leaf base” illustrated in Fig. 1 of the instant application occupies the same structural space as the stem disc illustrated in Fig. 1 of Ayabe et al.

A person of ordinary skill in the art would be motivated to use Ayabe et al.’s method of stem-disc culture with a virus-infected basal leaf explant to generate virus-free plants because Ayabe et al. noted the leaf base is an effective explant and garlic bulbs contain more basal leaf material so more plants could thus be produced. Further, Ayabe et al. state (page 779) that their method “is of practical use for the micropropagation of garlic plants, in particular as virus-free seed plants produced by shoot-tip culture.” Ayabe et al. note that one major advantage to the method is its applicability to large scale cultivation.

Claims 1-5 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Number 06197650 A in view of Ayabe et al. as modified by Verbeek et al.

The Japanese Patent teaches a method of culturing *Allium sativum* plants from a leaf base explant in a hormone-free medium.

The teachings of Ayabe et al. and Verbeek et al. are set forth above.

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The Japanese Patent abstract does not teach culture of a foliage leaf base to form a “domy tissue”, a specific thickness of explant in millimeters, or generation of virus-free plants.

A person of ordinary skill in the art would be motivated to use the method of Japanese Patent Number 06197650 A to culture virus-free plants from callus (domy tissue) because Ayabe et al. noted the leaf base is an effective explant and that tissue culture is an excellent method for virus eradication in garlic.

Comments

The following comments address Applicant’s arguments in the Remarks provided in response to the previous Office Action:

(1) Applicants assert that the claims are rejected over Ayabe in view of Verbeek or JP ‘650 in view of Verbeek. The claims are rejected over Ayabe et al. in view of Verbeek et al. or JP ‘650 in view of Ayabe et al. as modified by Verbeek et al.

(2) Applicants argue that none of the references teaches or suggest a method for producing virus free plants by isolating and culturing the foliage leaf base of a plant that is infected with a virus and propagates via scaly bulbs. However, in the last paragraph on page 773, Ayabe et al. suggest that “[t]issue culture is a useful technique for eliminating viruses from infected plantlets and for producing virus-free garlic seedlings.” Similarly, on the same page in the abstract Ayabe et al. suggest that “[t]he results of several field trials showed that the stem-disc culture method is useful for the production of garlic seed plants, including virus-free plantlets.” The Examiner notes that the “foliage leaf base” claimed, and illustrated in Fig. 1 of

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the drawings in the instant application appears to be an identical botanical structure to the stem disc described in Ayabe et al. and illustrated in Fig. 1 of that reference.

(3) Applicants argue “[n]owhere does Ayabe explicitly teach, disclose, or suggest culturing the domy tissue ...” however, Ayabe et al. not only suggest culturing the domy tissue; they do culture the domy tissue as illustrated in Fig. 3b and in the text on page 775. The inventive advantage of a “plurality of domy tissues formed from one ramentum” described by applicant in the specification also appears to be discussed by Ayabe et al. on page 75 where it is noted that “multiple dome-shaped structures appeared.”

(4) Applicants appear to call a stem-disc a “foliage leaf base” and a dome-shaped callus structure a “domy tissue”. Changing the name of these plant parts does not change their nature, structure or function; they are simply disclosed in Ayabe et al. under different terminology that is more commonly utilized in the art.

Conclusion

No claims are allowed.

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR

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1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Future Correspondence


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wendy C. Haas whose telephone number is (571) 272-0976. The examiner can normally be reached on Monday through Friday 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (571) 272-0811. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W. C. Haas



ANDREW WANG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600